Manjari Bagchi

Professor-G, Theoretical Physics (Astrophysics)

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[All information last updated on 30-December-2024.]

PERSONAL INFORMATION

Date of Birth: 12-January-1978 Nationality: Indian

EDUCATION

2007 **Ph.D.**, *Jadavpur University*, Kolkata, India
- "Studies of stellar and terrestrial observations from the point of view of QCD models"

2002 **M.Sc. (Physics)**, *Presidency College, University of Calcutta*, Kolkata, India

2001 **Basic Diploma in Computing**, *Indus Institute of Information Management, in association with the Department of Youth Services, Government of West Bengal*, Kolkata, India

2000 **B.Sc. (Physics Honours)**, *Bethune College, University of Calcutta*, Kolkata, India

EMPLOYMENT HISTORY

07/2019 – – **Professor-G**, *The Institute of Mathematical Sciences (IMSc)*, Chennai, India

08/2014 – 07/2019 **Reader-F**, *The Institute of Mathematical Sciences (IMSc)*, Chennai, India

12/2014 – 06/2015 **Beatriu de Pinós Fellow**, *Institute of Space Sciences (IEEC-CSIC)*, Barcelona, Spain

07/2013 -07/2014 **Post-doctoral Visiting Scientist**, *International Centre for Theoretical Sciences – Tata Institute of Fundamental Research*, Bangalore, India

04/2010 - 04/2013 **Post-doctoral Research Associate**, *West Virginia University*, Morgantown, USA

09/2009 - 03/2010 **Post-doctoral Fellow**, *Inter University Centre for Astronomy and Astrophysics*, Pune, India

03/2007 - 09/2010 **Post-doctoral Visiting Fellow**, *Tata Institute of Fundamental Research*, Mumbai, India

RESEARCH INTERESTS

1) **Physics of neutron stars**
2) **Neutron stars as radio pulsars**
3) **Gravitation**
4) **Galactic dynamics**
5) **Dense matter equations of state**
6) **Properties of globular clusters**

PROFESSIONAL EXPERIENCE

∗Publication Record (see appendix I for details)

indices **i10-index: 39 (google scholar), h-index: 24 (google scholar), 17 (inspirehep)**

citations **2750 (google scholar), 2083 (inspirehep), 2053 (inspirehep for 56 published papers; journals and some proceedings)**

Journals **53 (4 single authored + 18 first authorship + 4 with PhD student)**

Proceedings **9 (5 with first authorship)**

Book Chapters **1 (single authored)**

Reviews **1 (single authored)**

Technical Reports/ White Papers/ Research Notes: **6 (3 refereed)**

Popular Article: **1 (single authored)**

ATELs/GCNs: **8**

ATEL: The Astronomer's Telegram is an online only fast communication that deserves fast report and timely attention from the community. ;
GCN: The Gamma-ray Coordinates Network Circulars

∗Teaching

◦ Full Courses (two months or longer)

2021, 2022 **Quantum Mechanics I**, *The Institute of Mathematical Sciences*, Chennai, India
- First semester course-work of integrated PhD students of IMSc; three hours of classes per week.

2023, 2019 **Electromagnetic Theory**, *The Institute of Mathematical Sciences*, Chennai, India
- First semester course-work of integrated PhD students of IMSc; three hours of classes per week.

2019 **Gravitation and Cosmology**, *The Institute of Mathematical Sciences*, Chennai, India
- Second semester course-work of PhD students of IMSc; four-and-half hours of classes per week.

2016, 2017 **Classical Mechanics**, *The Institute of Mathematical Sciences*, Chennai, India
- First semester course-work of integrated PhD students of IMSc; four-and-half hours of classes per week.

◦ Short Courses (less than two months)

2019 **Probing Relativistic Gravity in the SKA Era Workshop**, *organized by The National Astronomical Institute of Thailand*, Chiang Mai, Thailand
- Lectures to participants (undergraduate students from various universities/colleges in Thailand, China, India, and Nepal) on "Pulsars as Neutron Stars".

2018 **uGMRT bootcamp**, *BITS-Pilani Hyderabad*, Hyderabad, India
- Lectures to participants (M.Sc/Ph.D. students and post-docs from various universities/institutes in India) on introduction to searching radio pulsars and fast radio transients.

2017 **Radio Astronomy Winter School for College & University Students**, *Radio Physics Laboratory, IUCAA and NCRA-TIFR*, Pune, India
- An introductory lecture to participants (B.Sc/B.Tech/M.Sc. student various universities/colleges in India) on "Pulsars: most exotic stellar undeads".

2016 **Pedagogical School on Neutron Stars**, *National Centre for Radio Astrophysics (NCRA) - TIFR*, Pune, India
- Lectures to participants (B.Sc/B.Tech/M.Sc/Ph.D. students and post-docs from various universities/institutes in India) on binary radio pulsars and fast radio transients.

2015 **Fourth Workshop for Pulsar Observatory for Students**, *Radio Astronomy Centre - TIFR*, Ooty, India
- Lectures to participants (B.Sc, M.Sc. students from various universities/institutes in India).

2013 **Second Workshop for Pulsar Observatory for Students**, *Radio Astronomy Centre - TIFR*, Ooty, India
- Lectures to participants (B.Sc, M.Sc. students from various universities/institutes in India).

2011-2012 **Searching Pulsars in a Drift-scan Survey**, *West Virginia University*, Morgantown, USA
- Lectures to undergraduate students.

2009 **Compact Stars**, *Inter University Centre for Astronomy and Astrophysics*, Pune, India
- Short course to M.Sc students from Presidency College, Kolkata.

2009 **Compact Stars**, *Tata Institute of Fundamental Research*, Mumbai, India
- A seminar to Ph. D students.

∗Supervision of Students

◦ PhD. Thesis

1. Sarbartha Sengupta; 2023 –, IMSc, Chennai, India.
2. Sushovan Mondal; 2019 –, IMSc, Chennai, India.
3. Jyotijwal Debnath; 2019 –, IMSc, Chennai, India.
4. Dhruv Pathak; 2016 – 2021, IMSc, Chennai, India. Joined IUCAA, Pune, India as a postdoc.

◦ Master's Thesis

1. Saurav Singh (2023-2024); , M.Sc. thesis, Maharashtra Institute of Technology (MIT-WPU), Pune, India. (remotely supervised).
2. Sarbartha Sengupta (2023); IPhD student, Institute of Mathematical Sciences, Chennai, India.
3. Deep Maity (2023); IPhD student, Institute of Mathematical Sciences, Chennai, India.
4. Sahil Atri (2021-2022); BS-MS student, IISER-Tirupati, Tirupati, India.
5. Anirban Chakraborty (2019-2020); M.Sc. student, Indian Institute of Technology Madras, Chennai, India.
6. Arindam Mitra (2017); IPhD student, Institute of Mathematical Sciences, Chennai, India.
7. Arya Mitra (2015); IPhD student, Institute of Mathematical Sciences, Chennai, India.
8. Renuka Vaithiyanathan (2015-2016); M.Sc. student, DG Vaishnav College, Arumbakkam, Chennai, India.

◦ Short term undergraduate students

1. Elizabeth Rigby, Erica Chwalik (June-July, 2019) NANOGrav students through the National Science Foundation' (USA) International Research Experiences for Students Program, hosted at IMSc, Chennai, India.
   ◦ Two posters were presented at the 235th meeting of the American Astronomical Society (2020) by the students.
2. Suyog Garg (June-July, 2019); Summer student at Institute of Mathematical Sciences, Chennai, India.
   ◦ A Research Notes of the AAS has been published as a result of this project.
3. Om Gupta, Nithishwer M. (June-July, 2018) Summer students at Institute of Mathematical Sciences, Chennai, India.
4. Natalie Ann Meyers, Juzel Lloyd (June-July, 2018) NANOGrav students through the National Science Foundation' (USA) International Research Experiences for Students Program, hosted at IMSc, Chennai, India.
5. Arkalekha Niogi (June-July, 2017) Summer students at Institute of Mathematical Sciences, Chennai, India.
6. Varun Rustagi, Aswin Manohar (June-July, 2016) Summer students at Institute of Mathematical Sciences, Chennai, India.
7. Debashish Jena, Ananya Sahoo, T. Anishya, Aninda Ghosh (June-July, 2015) Summer students at Institute of Mathematical Sciences, Chennai, India.
8. Craig Tenney (2013 - 2014), undergraduate student, West Virginia University, supervised jointly with Prof. Duncan Lorimer
   ◦ The work was presented as a poster at the 223rd meeting of the American Astronomical Society (2014) by Craig Tenney.
9. Angela Cortes Nieves (2010 - 2011), undergraduate student, West Virginia University, supervised jointly with Prof. Maura McLaughlin
   ◦ A paper has been published as a result of this project.

∗Mentoring Postdocs

1. Shaswata Chowdhury; 2024 –, IMSc, Chennai, India.
2. Debabrata Deb; 2022 –, IMSc (Research Associate through Apex-I project), Chennai, India.
3. Pratik Tarafdar; 2021 - 2024, IMSc, Chennai, India.
4. Arpita Choudhary; 2016 - 2017, Institute postdoc; 2019 – 2021 DST WOS-A Scientist, IMSc, Chennai, India.

∗Software Releases

2021 **GalDynPsrFreq**, *https://pypi.org/project/GalDynPsrFreq/*, supervised PhD student Dhruv Pathak in development of this package

2020 **pinta**, *https://github.com/abhisrkckl/pinta*, Participated in testing the package during development, provided suggestions for improvements

2018 **GalDynPsr**, *https://pypi.org/project/GalDynPsr/*, supervised PhD student Dhruv Pathak in development of this packag

∗Outreach Events Participated

2023 **Opportunities and possible future course of Action**, A panel discussion on 28-April-2023 part of "Inaugural meeting of Asian-Oceanian Women in Mathematics (AOWM)" held from 24 April 2023 to 28 April 2023 at International Centre for Theoretical Sciences, Tata Institute of Fundamental Research, Bengaluru, India.

2016 **Physics Conclave**, A panel discussion on Gravitational Waves and Higgs Boson) organized by Life Lab (NGO) and Shri Ram School, on 6-May-2016 at Shri Ram School, Moulsari Avenue, Gurgaon.

2015, 2016 **"Chat with an astronomer"**, Participated skype-chat session of the "Girls' Day" organized by the Netherlands Institute for Radio Astronomy (ASTRON).

2015 – **19 talks**
(see appendix IV for details).

∗Recognitions

2014 **Honorable Mention in the 2014 Awards for Essays on Gravitation by the Gravity Research Foundation**

2011 **International Scholar Recognition Award, West Virginia University, Morgantown, WV, USA**

∗Media Coverage

2023 **EPTA, InPTA joint papers**, *featured in many national and international media*

2014 **Paper titled "In what sense a neutron star-black hole binary is the holy grail for testing gravity?"**, *featured in Nature India and many other national and international electronic media including International Business Times, Science World Report, The Information and Scientific News Service (SINC), etc.*

2008 **Paper titled "Chromothermal oscillations and collapse of strange stars to black holes: astrophysical implications"**, *featured in Nature India*

∗Grants

2021 **The sole PI of the subproject "Study of Radio Pulsars to Probe Fundamental Physics" as a part of the DAE Apex project "Advanced Research and Education in Mathematical Sciences at IMSc Vision Scheme: Vision 8"**

2013 **Faculty Travel Grant, West Virginia University, Morgantown, WV, USA**

2011 **Faculty Travel Grant, West Virginia University, Morgantown, WV, USA**

2009 **UK-India Education and Research Initiative (UKIERI) Grant**

∗Membership of Professional Committees

2019 – **International Pulsar Timing Array**

2019 – **Indian Pulsar Timing Array**

2019 – **Thiruvalluvar University, Vellore, Tamil Nadu**, *Member of The Board of Studies*

2018 – **International Astronomical Union (IAU)**, *Membership id 17739*

2018 – **Management Committee Observer for the European Cooperation in Science and technology (COST) Action CA16214 titled "The multi-messenger physics and astrophysics of neutron stars (PHAROS)"**

2015 – **Alumnus of Kavli Frontier of Science, promoted by The National Academy of Sciences, USA**

2014 – **Astronomical Society of India (ASI)**, *Life Membership*

2014 – 2017 **International Science Development Team (Time Domain Science) of the Thirty Meter Telescope (TMT)**

2013 – **Indian Initiative in Gravitational-wave Observations (IndIGO)**

∗Experience with Astronomical data

2013 – **Giant Metrewave Radio Telescope**, *Narayangoan, India*, observations and data analyses

2010, 2011 **Parkes Radio Telescope**, *Parkes, Australia*, data analyses

2010-2012 **Arecibo Radio Telescope**, *Arecibo, USA*, data analyses

2011 **Fermi Gamma Ray Satellite**, *NASA*, data analyses

2013- , 2007-2008 **Ooty Radio Telescope**, *Ooty, India* , observations and data analyses

2005 **Rossi X-ray Timing Explorer Satellite**, *NASA*, data analyses

∗Refereeing for Journals

2024 **Publications of the Astronomical Society of Australia, Monthly Notices of the Royal Astronomical Society, General Relativity and Gravitation**

2023 **Physics Education**, *(Quarterly e-journal devoted to physics pedagogy published by Indian Association of Physics Teachers)*

2022 **Journal of Astrophysics and Astronomy, Resonance−Journal of Science Education (Indian Academy of Sciences), Astrophysics and Space Science**

2019 **Journal of Astrophysics and Astronomy**

2017 **Resonance−Journal of Science Education (Indian Academy of Sciences), Physics News (Indian Physics Association)**

2016 **Journal of Astrophysics and Astronomy, Europhysics Letters**

2012 **Astrophysics and Space Science**

2010 **Nature**

∗Refereeing for Observation Proposal

2022 **Five-hundred-meter Aperture Spherical Telescope (FAST), China**

2014 – **Giant Metrewave Radio Telescope (GMRT), India**

2017, 2018 **ASTROSAT, India**

∗Refereeing for Funding Agencies

2022 **SERB**, *Research Grants for faculty members in Indian Institutes/Universities (reviewed twice)*, India

2019 **DAE-BRNS**, *Research Grants for faculty members in Indian Institutes/Universities (reviewed twice)*, India

2016 - 2020 **NASA**, *Post-Doctoral Program*, USA

2010 **National Research Foundation**, *Monitoring and Evaluation Unit*, South Africa

∗Seminars Given

55
(see appendix IV for details)

∗Conferences Attended

61 (31 international) + 1 (remotely, international), *30 oral presentations, 11 poster presentations*
(see appendix II for details)

∗Conferences Organised But Not Attended

3 (2 international)
(see appendix IV for details)

∗ Research Training Schools Attended

5 (3 international)
(see appendix V for details)

∗Thesis Examined

2023 **Thesis examiner**, *a thesis submitted to University of Manchester for an MSc. degree*

2023 **Thesis examiner**, *a thesis submitted to Dibrugarh University for a PhD degree*

2022 **Thesis examiner**, *a thesis submitted to IISER-Bhopal for a PhD degree*

2021 **Thesis examiner**, *a thesis submitted to Jawaharlal Nehru University (of a student of IUCAA) for a PhD degree*

2020 **Thesis examiner**, *a thesis submitted to Pondicherry University (of a student of IIA) for a PhD degree*

∗Other Synergistic Activities

2021 – 2022 **Co-Chair**, *Education and Public Outreach Working Group, International Pulsar Timing Array*

2014 – **Organised several conferences**

2020 **Member of the interview panel for PhD and IPhD student selection**, *Aryabhatta Research Institute of Observational Sciences, Nainital, India*

2019-2020 **Convener, High-Energy Physics Faculty**, *Institute of Mathematical Sciences, Chennai, India*

2015 – 2023 **Institutional Committees**, *Institute of Mathematical Sciences, Chennai, India*

2019 **Acted as a reviewer of an online course on Astronomy and Astrophysics (ARPIT-2019) for teachers of colleges and universities as a part of the SWAYAM programme of the Government of India.**, *The course was prepared by IUCAA, the National Resource Centre for Astronomy*

2016– **Member of the interview panel for PhD and IPhD student selection**, *Institute of Mathematical Sciences, Chennai, India*

2016 **Member of the written comprehensive examination committee**, *Institute of Mathematical Sciences, Chennai, India*

2016 **Member of the interview panel for SRF selection**, *Radio Astronomy Centre (RAC-TIFR), Ooty, India*

2016 **Acted as an examiner of an M.Sc. thesis**, *Institute of Mathematical Sciences, Chennai, India*

2016 **Acted as an examiner of a project thesis (part of Ph.D course-work)**, *Institute of Mathematical Sciences, Chennai, India*

2013-2014 **In charge of bimonthly journal club**, *International Centre for Theoretical Sciences, Bangalore, India.*

2012 **Involved in the globular cluster database**, *http://gclusters.altervista.org/index.php*

APPENDIX I: Publication List

(Publications with * are lead by undergraduate/graduate students supervised).

(A) International Refereed Journals:

Astrophysics

53. * S. Mondal, **M. Bagchi**, "Non-radial oscillation of anisotropic neutron stars in full general relativity", Physical Review D, 110 (2024) 123011.
52. J. Antoniadis, et al., "The second data release from the European Pulsar Timing Array V. Search for continuous gravitational wave signals" stronomy and Astrophysics, 690 (2024) A118. **(includes M. Bagchi)**
51. J. Antoniadis, et al., "The second data release from the European Pulsar Timing Array: IV. Implications for massive black holes, dark matter and the early Universe", Astronomy and Astrophysics, 685A (2024) A94. **(includes M. Bagchi)**
50. G. Agazie, et. al., "Comparing recent PTA results on the nanohertz stochastic gravitational wave background"; The Astrophysical Journal, 966 (2024) 105. **(includes M. Bagchi)**

2024

49. T. Kikunaga et al., "Low-frequency pulse-jitter measurement with the uGMRT I : PSR J0437-4715", accepted for publication in Publication of the Astronomical Society of Australia. **(includes M. Bagchi)**
48. J. Singha et al., "Improving DM estimates using low-frequency scattering-broadening estimates", Monthly Notices of the Royal Astronomical Society, 535 (2024) 1184. **(includes M. Bagchi)**
47. J. S. Deneva, M. McLaughlin, T. E. E. Olszanski, E. F. Lewis, D. Pang, P. C. C. Freire, **M. Bagchi**, K. Stovall, "The AO327 Drift Survey Catalog and Data Release of Pulsar Detections", The Astrophysical Journal Supplement Series, 271 (2024) 23.
46. A. Paladi, et al., "Multi-band Extension of the Wideband Timing Technique", Mon. Not. R. Astron. Soc., 527 (2024) 213. **(includes M. Bagchi)**

45. J. Antoniadis, et al., "The second data release from the European Pulsar Timing Array III. Search for gravitational wave signals", Astronomy and Astrophysics, 678A (2023) 50E. **(includes M. Bagchi)**
44. J. Antoniadis, et al., "The second data release from the European Pulsar Timing Array II. Customised pulsar noise models for spatially correlated gravitational waves" Astronomy and Astrophysics, 678A (2023) 49E. **(includes M. Bagchi)**

2023

43. E. F. Lewis, T. E. E. Olszanski, J. S. Deneva, P. C. C. Freire, M. A. McLaughlin, K. Stovall, **M. Bagchi**, J. G. Martinez, B. B. P. Perera, "Discovery and Timing of Millisecond Pulsars with the Arecibo 327 MHz Drift-Scan Survey", Astrophys. J., 956 (2023) 132L,
42. * J. Debnath, **M. Bagchi**, A. Basu, "A study of the light bending phenomenon under full general relativity for a pulsar in a binary with a Schwarzschild black hole", Mon. Not. R. Astron. Soc., 524 (2023) 5411.
41. A. Srivastava, et al., "Noise analysis in the Indian Pulsar Timing Array Data Release I", Physical Review D 108 (2023) 2. **(includes M. Bagchi)**

40. P. Tarafdar, et al., "The Indian Pulsar Timing Array: First data release", Publications of the Astronomical Society of Australia, 39 (2022) e053. **(includes M. Bagchi)**

2022

39. Y. Maan, M. P. Surnis, B.C. Joshi, **M. Bagchi**, "Magnetar XTE J1810-197: Spectro-temporal evolution of average radio emission", Astrophys. J., 931 (2022) 67.
38. K. Nobleson, et al., "Low-frequency wideband timing of InPTA pulsars observed with the uGMRT", Mon. Not. R. Astron. Soc., 512 (2022) 1234. **(includes M. Bagchi)**

37. J. Singha, et al., "Evidence for profile changes in PSR J1713+0747 using the uGMRT"- Mon. Not. R. Astron. Soc., 507 (2021), L57-L61. **(includes M. Bagchi)**

2021

36. M. A. Krishnakumar, et al., "High Precision Measurements of Interstellar Dispersion Measure with the upgraded GMR", Astronomy and Astrophysics, 651 (2021) A5. **(includes M. Bagchi)**

35. A. Susobhanan, et al., "pinta: The uGMRT Data Processing Pipeline for the Indian Pulsar Timing Array", Publications of the Astronomical Society of Australia, 38 (2021) E017. **(includes M. Bagchi)**

34. * D. Pathak, **M. Bagchi**, "A study of the dynamical effects in the observed second time-derivative of the spin or orbital frequencies of pulsars", New Astronomy, 85 (2021) 101549.

33. Y. Maan, B. C. Joshi, M. P. Surnis, **M. Bagchi**, P. K. Manoharan, "Distinct properties of the radio burst emission from the magnetar XTE J1810-197" - Astrophys. J Lett, 882 (2019) L9.

2019

32. J.G. Martinez, P. Gentile, P.C.C. Freire, K. Stovall, J.S. Deneva, G. Desvignes, F.A. Jenet, M.A. McLaughlin, **M. Bagchi**, T. Devine, "The discovery of six recycled pulsars from the Arecibo 327-MHz drift-scan pulsar survey" - Astrophys. J, 881 (2019) 166.

31. K. Stovall, P. C. C. Freire, J. Antoniadis, **M. Bagchi**, J. S. Deneva, *et* al., "PSR J2234+0611: A new laboratory for stellar evolution", - Astrophys. J. 870 (2019) 74.

2018

30. * D. Pathak, **M. Bagchi**, "Dynamical effects in the observed rate of change of the orbital and the spin periods of radio pulsars: Improvement in the method of estimation and its implications", - Astrophys. J. 868 (2018) 123.

2017

29. J. G. Martinez, K. Stovall, P. C. C. Freire, J. S. Deneva, T. M. Tauris, A. Ridolfi, N. Wex, F. A. Jenet, M. A. McLaughlin, **M. Bagchi**, "Pulsar J1411+2551: A low-mass double neutron star system" - Astrophys. J. Lett. 851 (2017) L29.

28. **M. Bagchi**, "A unified model for repeating and non-repeating fast radio bursts" - Astrophys. J. Lett. 838 (2017) L16.

2016

27. J. S. Deneva, K. Stovall, M. A. McLaughlin, **M. Bagchi**, S. D. Bates, P. C. C. Freire, J. G. Martinez, F. Jenet, N. Garver-Daniels, "New discoveries from the Arecibo 327 MHz drift pulsar survey radio transient search" - Astrophys. J. 821 (2016) 10.

2015

26. J.G. Martinez, K. Stovall, P.C.C. Freire, J.S. Deneva, F.A. Jenet, M. A. McLaughlin, **M. Bagchi**, S.D. Bates, A. Ridolfi, "Pulsar J0453+1559: A double neutron star system with a large mass asymmetry" - Astrophys. J. 812 (2015) 143.

2014

25. **M. Bagchi**, D. F. Torres, "In what sense a neutron star-black hole binary is the holy grail for testing gravity?" - JCAP 08 (2014) 055 (a shorter version received the honorable mention in the 2014 'Awards for Essays on Gravitation' by the Gravity Research Foundation).

2013

24. J. S. Deneva, K. Stovall, M. A. McLaughlin, S. D. Bates, P. C. C. Freire, F. Jenet, **M. Bagchi**, "Goals, strategies and first discoveries of AO327, the Arecibo all-sky 327 MHz drift pulsar survey" - Astrophys. J. 775 (2013) 51.

23. **M. Bagchi**, D. R. Lorimer, S. Wolfe, "On the detectability of eccentric binary pulsars" - Mon. Not. R. Astron Soc. 432 (2013) 1303.

22. J. Chennamangalam, D. R. Lorimer, I. Mandel, **M. Bagchi**, "Constraining the luminosity function parameters and population size of radio pulsars in globular clusters" - Mon. Not. R. Astron. Soc. 431 (2013) 874.

21. **M. Bagchi**, "Periastron advance in neutron star–black hole binaries" - Mon. Not. R. Astron. Soc. 428 (2013) 1201.

2012

20. **M. Bagchi**, A. Cortes Nieves, M. McLaughlin,"A search for dispersed radio bursts in archival Parkes Multibeam Pulsar Survey data", - Mon. Not. R. Astron. Soc. 425 (2012) 2501.

19. **M. Bagchi**, D. R. Lorimer, J. Chennamangalam, "Luminosities of recycled radio pulsars in globular clusters" - Mon. Not. R. Astron. Soc. 418 (2011) 477. 2011

18. **M. Bagchi**, "The role of binding energies of neutron stars on the accretion driven evolution" - Mon. Not. R. Astron. Soc. 413 (2011) L47.

17. **M. Bagchi**, "Rotational parameters of strange stars in comparison with neutron stars" - New Astronomy 15 (2010) 126. 2010

16. A. Gopakumar, **M. Bagchi**, A. Ray, "Ruling out Kozai resonance in highly eccentric galactic binary millisecond pulsar PSR J1903 + 0327" - Mon. Not. R. Astron. Soc. 399 (2009) L123.

15. **M. Bagchi**, A. Ray, "Radio pulsar binaries in globular clusters: their orbital eccentricities and stellar interactions" - Astrophys. J. 701 (2009) 1161. 2009

14. **M. Bagchi**, A. Ray, "Orbital eccentricity of binary radio pulsars in globular clusters and interaction between stars" - Astrophys. J. Letters 693 (2009) L91.

13. **M. Bagchi**, J. Dey, S. Konar, G. Bhattacharya, M. Dey, "Members of the double pulsar system PSR J0737-3039: neutron stars or strange stars?" - New Astronomy 14 (2009) 37.

12. **M. Bagchi**, J. Staff, R. Ouyed, S. Ray, M. Dey, J. Dey, "Chromo-thermal oscillations and collapse of strange stars to black holes: astrophysical implications" - Mon. Not. R. Astron. Soc. 387 (2008) 115. 2008

11. P. Jaikumar, **M. Bagchi**, R. Ouyed, "High-density skyrmion matter and neutron stars" - Astrophys. J. 678 (2008) 360.

10. J. Staff, R. Ouyed, **M. Bagchi**, "A three-stage model for the inner engine of gamma-ray bursts: prompt emission and early afterglow" - Astrophys. J. 667 (2007) 340. 2007

9. **M. Bagchi**, S. Ray, M. Dey, J. Dey, "Possible evidence for strange stars from joint observations of harmonic absorption bands and of redshifted spectral lines" - Mon. Not. R. Astron. Soc. 368 (2006) 971.

8. **M. Bagchi**, S. Ray, M. Dey, J. Dey, "Compact strange stars with medium dependence of gluons at finite temperature" - Astron. & Astrophys. 450 (2006) 431. 2006

7. R. D. Ray Mandal, M. Sinha, **M. Bagchi**, S. Konar, M. Dey, J. Dey, "Strange pulsar hypothesis" - Mon. Not. R. Astron. Soc. 365 (2006) 1383.

6. **M. Bagchi**, M. Sinha, M. Dey, J. Dey, S. Bhowmick, "Newtonian and general relativistic contribution of gravity to surface tension of strange stars" - Astron. & Astrophys. 440 (2005) L33. 2005

High Energy Physics

5. **M. Bagchi**, J. Dey, M. Dey, T. Gangopadhyay, S. Laha, S. Ray, M. Sinha, "Bound for entropy and viscosity ratio for strange quark matter" - Physics Letters B 666 (2008) 145. 2008

4. **M. Bagchi**, S. Daw, M. Dey, J. Dey, "Mean field baryon magnetic moments and sumrules" - Europhys. Lett. 75 (2006) 548. 2006

3. **M. Bagchi**, M. Sinha, M. Dey, J. Dey, "Decoupling of pion coupling f_π from quarks at high density in three models, and its possible observational consequences" - Phys. Lett. B 618 (2005) 115. 2005

2. **M. Bagchi**, M. Dey, S. Daw, J. Dey, "A model finding a new Richardson potential with different scales for confinement and asymptotic freedom, by fitting the properties of Δ^{++} and Ω^-" - Nucl. Phys. A 740 (2004) 109. 2004

1. M. Sinha, **M. Bagchi**, J. Dey, M. Dey, S. Ray, S. Bhowmick, "Incompressibility of strange matter" - Phys. Lett. B 590 (2004) 120.

(B) Arxiv Preprints:

Astrophysics

2024

2. D. Deb, **M. Bagchi**, S. Banik, "Exploring the Impact of Extra Dimensions on Neutron Star Structure and Equation of State", arXiv:2403.07174

2020

1. A. Chakraborty, **M. Bagchi**, "Understanding the Galactic population of normal pulsars: A leap forward", arXiv preprint arXiv:2012.13243

(C) Invited Reviews:

Astrophysics

2013

1. **M. Bagchi**, "Luminosities of radio pulsars" - Invited review; Int. J. Mod. Phys. D 22 (2013) 1330021.

(D) Technical Reports/White Papers/Research Notes:

Astrophysics

2022

6. B. C. Joshi et al., "Nanohertz gravitational wave astronomy during SKA era: An InPTA perspective": Journal of Astrophysics and Astronomy 43 (2022) 98.

2019

5. S. Garg, M. Bagchi, "Negligible tidal effect in periastron precession in neutron star–black hole (Stellar Mass) binaries"; Res. Notes AAS 3 (2019) 125.

2016

4. Y. Gupta, P. Chandra, **M. Bagchi**, N. M. Ramanujam, Y. Maan, A. Deshpande, S. Bhattacharyya,"Fast transients with the SKA and its pathfinders: An Indian perspective" - Journal of Astrophysics and Astronomy 37 (2016) 37.
3. Konar *et al.*, "Neutron star physics in the SKA Era: An Indian perspective" - Journal of Astrophysics and Astronomy 37 (2016) 36.
2. M. Arjunwadkar, A. Kashikar, M. Bagchi, "Neutron stars in the light of SKA: Data, statistics, and science" - Journal of Astrophysics and Astronomy 37 (2016) 28.

2015

1. Skidmore *et al.*, "Thirty Meter Telescope detailed science Case: 2015" - Research in Astronomy and Astrophysics 15 (2015) 1945S.

(E) Conference Proceedings:

Astrophysics

2018

9. B. C. Joshi et al., "Precision pulsar timing with the ORT and the GMRT and its applications in pulsar astrophysics" - J Astrophys Astron 39 (2018) 51. Proceeding of the workshop "Advances in Astroparticle Physics and Cosmology, AAPCOS-2018" held at Saha Institute of Nuclear Physics, Kolkata, India; during 06 - 09 March, 2018.

2018

8. **M. Bagchi**, "Prospects of constraining the dense matter equation of state from the timing analysis of pulsars in double neutron star binaries: the cases of PSR J0737-3039A and PSR J1757-1854" - Universe, 4(2), 2018, 36; Special issue dedicated to the conference: "Compact Stars in the QCD Phase Diagram VI" held at The Joint Institute for Nuclear Research (JINR), Dubna, Russia; during 26 - 29 September, 2017. ***Refereed**

2014

7. **M. Bagchi**, D. R. Lorimer, S. Wolfe, "The detectability of eccentric binary pulsars", 2014, ASI Conference Series, 13, 93, Edited by J. N. Chengalur & Y. Gupta (the proceeding of "The Metrewavelength Sky Conference" held at NCRA-TIFR, Pune, from December 9-13 2013); arXiv:1401.4123.

2013

6. J. Chennamangalam, D. R. Lorimer, I. Mandel, **M. Bagchi**, "Constraining the luminosity function parameters and population size of radio pulsars in globular clusters" - Proceedings of IAUS 291 (2013) 257; "Neutron Stars and Pulsars: Challenges and Opportunities after 80 years", J. van Leeuwen (ed.); arXiv:1210.5472.

2011

5. **M. Bagchi**, D. R. Lorimer, "The luminosity function of cluster pulsars" - AIP Conference Proceedings 1357 (2011) 173; the proceedings of "Radio Pulsars: a key to unlock the secrets of the Universe" in Sardinia, October 10-15, 2010.

2009

4. **M. Bagchi**, A. Ray, "Orbital parameters of binary radio pulsars in globular clusters and stellar interactions" - ASP Conference Proceedings ASPC 407 (2009) 353; the proceedings of "The Low-Frequency Radio Universe" at National Centre for Radio Astrophysics (NCRA), Pune, India; December 8-12, 2008.

2008

3. **M. Bagchi**, S. Ray, M. Dey, J. Dey, "Strange Stars: an interesting member of the compact object family" - AIP Conference Proceedings 968 (2008) 209; the proceedings of the international conference on "Astrophysics Of Compact Objects" in Huangshan, China, July 1-7, 2007.

2006

2. S. Ray, **M. Bagchi**, M. Dey, J. Dey, "Strange stars at finite temperature" - J. Phys. Conf. Ser. 31 (2006) 107; the proceedings of the third 21COE symposium, at the Department of Physics, Waseda University, Tokyo, Japan, September 1-3, 2005.

1. **M. Bagchi**, S. Ray, M. Dey, J. Dey, "Strange star Equation of State with a modified Richardson potential" - Adv. Space Res. 38 (2006) 2912; the proceedings of COSPAR Colloquium on "Spectra and Timing of Compact X-Ray Binaries" at TIFR, Mumbai, January 17 - 21, 2005. ***Refereed**

(F) Invited Chapters in Books:

Astrophysics

2010

1. **M. Bagchi**, "Orbital parameters of binary radio pulsars: revealing their structure, formation, evolution and dynamic history" - Invited chapter in "Pulsars: Theory, Categories and Applications", Editor: Alexander D. Morozov, 2010, Nova Science Publishers, ISBN: 978-1-61668-919-3; arXiv: 1004.2730.

(G) Popular Article:

Astrophysics

2016

1. **M. Bagchi**, "A Universal truth" - Invited essay (on compact objects and gravitational waves) in the 'Fountain Ink' magazine, March-2016 issue (online version is available here with the title 'Gravitational waves: A new beginning': `http://fountainink.in/?p=8129`).

(H) ATELs:

2021

8. M. Surnis, B. Stappers, F. Jankowski, K. Rajwade, M. Caleb, B. C. Joshi, **M. Bagchi**, "Upper limits on the continuum radio emission of SGR J1935+ 2154 from uGMRT observations", ATel 14395 (2021).

7. M. Surnis, B. C. Joshi, B, Stappers, K. Sand, **M. Bagchi** et al., "Upper limits on the radio emission of SGR 1830-0645 from uGMRT observations", ATel 14091 (2020).

6. K. R. Sand, et al., "Low-frequency detection of FRB180916 with the uGMRT", ATel 13781, (2020).

5. M. Surnis, B. C. Joshi, **M. Bagchi**, et al., "Radio pulsation and imaging study of SGR J1935+2154 with the uGMRT", ATel 13799, (2020).

4. M. Surnis, B. C. Joshi, **M. Bagchi**, et al., "Radio pulsation and imaging study of SGR J1935+2154 with the uGMRT", ATel 13777, (2020).

3. M. Surnis, B. C. Joshi, **M. Bagchi**, et al., "A search for radio pulsations from SGR J1935+2154", ATel 13769, (2020).

2. B. C. Joshi, **M. Bagchi**, "Detection of pulsed radio emission from bursting Magnetar Swift J1818. 0-1607 below 750 MHz with the uGMRT", ATel 13580, (2020).

2018

1. B. C. Joshi, Y. Maan, M. P. Surnis, **M. Bagchi**, P. K. Manoharan, "Detection of pulsed radio emission from bursting Magnetar XTE1810-197 below 750 MHz with the uGMRT", ATel 12312, (2019).

APPENDIX II: Details of Conferences Attended

(Participated in organisational aspects of conferences marked with *.)

62. "BCVSPIN Conference 2024: Particle Physics and Cosmology in the Himalayas" Kathmandu, Nepal; 9-13 December 2024. **"Radio pulsars as the best (natural) laboratory to test aspects of fundamental physics" – invited plenary talk.**

61. "NEOSGrav2024: Conference on Neutron Star Equation of State and Gravitational Waves" Goa, India (organised by IUCAA); 01-04 October 2024. **"Constraining Dense Matter Equation of State (and detecting gravitational waves) by Timing Analysis of Radio Pulsars" – an oral presentation.**

2024

60. "The Seminar on Gravitational Waves", Jaipur National University, Jaipur, India; September 14, 2024. **"Hunting low-frequency gravitational waves through Pulsar Timing Arrays: The role of InPTA " – an oral presentation.**

59. * "Trends in Astroparticle and Particle Physics (TAPP)' at IMSc, Chennai, India; 24-27 September 2024. (Chair of the Scientific Organising Committee and the Local Organising Committee.)

58. * "A Conference on Pulsar Timing Array Experiments: Present and Future of Indian Contribution" at IMSc, Chennai, India; 5-9 February 2024. (Chair of the Scientific Organising Committee and the Local Organising Committee)

57. The Pioneer Symposium 'Gravitational Wave Background and Pulsar Timing Array Observation' of the fall meeting of Korean Physics Soceity; Changwon, South Korea, October 26, 2023. **"Pulsar Timing Array Experiments: Detection of low-frequency gravitational waves and some auxiliary sciences" – invited oral presentation.**

2023

56. * "Remembering Amal Kumar Raychaudhuri (AKR): the celebration of the centenary year" held at The Institute of Mathematical Sciences, Chennai, India; October 5-7, 2023. (member of the organising committee).

55. * "Neutron Star Meeting at IMSc", 01-08 February, 2023 (Chair of the Scientific Organising Committee and the Local Organising Committee). This meeting had three parts: (i) "Neutron Stars: The celestial clocks that probe extreme physics" – an international conference in the hybrid mode, 01-03 February, 2023; (ii) Outreach event for school kids, 04 February, 2023; (iii) "Discussion and work together meeting for the Indian Pulsar Timing Array consortium", 06-08 February, 2023.

54. "IMSc – Celebrating 60 Years of Creative Science" held at The Institute of Mathematical Sciences, Chennai, India; 2-5 January, 2023. **"Studying Gravitational Physics using Pulsars" – invited oral presentation.**

2021

53. * "Annual Meeting of the International Pulsar Timing Array (online)" – 21-25 June 2021 (member of the Scientific Organising Committee).

52. * "Arecibo Day" – An online meeting on 22-December-2020 to discuss science done by Indian astronomers with the Arecibo radio telescopes that was located in Puerto Rico, USA and unfortunately collapsed on 01-December-2020.

51. * "Virtual Meeting on Compact Stars and QCD-2020", held online by ICTS-TIFR, Bangalore, India; 17-21 August 2020. – Chair of the organising committee.

50. * InPTA busy week (online) – An extensive online discussion meeting on the various collaborative projects of InPTA during 12-17-April-2020.

2020

49. "38th Meeting of Astronomical Society of India" held at IISER-Tirupati, Tirupati, India; 14-17 January 2020. **"The most fascinating member of the compact object family: neutron stars as the celestial laboratory to probe fundamental physics" – invited plenary talk.**

48. "3rd National Symposium on Very High Energy Gamma-Ray Astronomy" held at DAE convention Centre, Anushakti Nagar, Mumbai, India; 16-18 January 2020. **"Properties of pulsars located in globular clusters of the Milky Way" – invited oral presentation.**

47. "Challenges and Innovations in Computational Astrophysics" held in Saint Petersburg, Russian Federation; 16-20 September 2019. **"Understanding and eliminating external dynamical effects from the observed rate of change in the periods of pulsars (or any other objects)" – Remote oral presentation.**

46. * The Science week of "10th International Pulsar Timing Array (IPTA) annual meeting" Pune, India; 10 - 21 June 2019 (student week: 10 - 14 June, science week: 17 - 21 June). **"The Role of Pulsar Surveys in Advancement of Gravitational Science" – oral presentation; Chair of the Scientific Organizing Committee**

2019

45. "SKA General Science Meeting and Key Science Workshop 2019" held at Alderly Park Conference Centre, Macclesfield Cheshire, UK; 8-12 April 2019. **"Updates from Indian Neutron Star Community" – oral presentation as the representative of Indian Neutron Star community, funded by SKA-India**

44. "Second Asia SKA Initiative On Neutron Stars (ASIONS)" organized by at The National Astronomical Institute of Thailand, Chiang Mai, Thailand; 29-30 January 2019. **"Eliminating dynamical effects from the observed rate of change of the periods of the pulsars" – oral presentation (invited)**.

43. * "The Stellar Legacy of Prof. Meghnad Saha: from Society to the Cosmos" at IMSc, Chennai, India; 3-4 January 2018. Two day program (one and half day conference and one and half day outreach for school students) celebrating the 125th birth anniversary of Meghnad Saha. (Convener)

2018

42. "Multi-Wavelength Neutron Star Workshop" at BITS-Pilani, Hyderabad, India; 7-8 January 2018. **"Pulsar Population Synthesis" – oral presentation**. (Member of SOC)

41. "Pulsar and FRB Search Software in The Era of Real-Time Surveys" at The South African Astronomical Observatory, Cape Town, South Africa; 11-14 December 2017. **"Binary Pulsars and More" – oral presentation (invited)**.

40. "Compact Stars in the QCD Phase Diagram VI" at The Joint Institute for Nuclear Research (JINR), Dubna, Russia; 26-29 September, 2017. **"Prospects of constraining the dense matter equation of state from observations and data analysis of radio pulsars in binaries" – oral presentation (invited)**.

2017

39. "Recent Trends in the Study of Compact Objects - Theory and Observation (RETCO - III)" at Indian Institute of Space Science & Technology, Thiruvananthapuram, India; 5-7 June 2017. **"Understanding the Mystery of Fast Radio Bursts" – oral presentation (invited)**.

38. "29th meeting of the Indian Association for General Relativity and Gravitation (IAGRG)" at the Indian Institute of Technology-Guwahati, Guwahati, India; 18-20 May, 2017. **"Use of binary radio pulsars with ultra-compact companions to understand basic physics" – oral presentation (invited)**.

37. "First ASIONS (Asia SKA Initiative on Neutron Stars)", at Goa, India; November 04 - November 05, 2016; **"Pulsars in the dense (Galactic) environment": an oral presentation**. (member of SOC).

2016

36. "2016 Meeting of International Pulsar Timing Array", at Stellenbosch Institute for Advance Studies, Stellenbosch, South Africa; June 27 - July 01, 2016. **"Status of Indian Pulsar Timing Array, a new initiative": an oral presentation**.

35. "Science with the uGMRT", at The National Centre for Radio Astronomy – Tata Institute of Fundamental Research, Pune, India; June 15-17, 2016. **"Pulsar Timing: basics, present day efforts, and future potentials using uGMRT": an oral presentation**.

34. "International Conference on Gravitation and Cosmology (ICGC-2015)", at Indian Institute of Science Education and Research Mohali, Mohali, India; December 14-18, 2015. **"Use of binary radio pulsars with compact companions to understand gravity": an oral presentation**.

2015

33. "The 6th Indo-American Frontiers of Science Symposium" (Kavli Frontiers of Science), jointly organized by the Indo-US Science and Technology Forum and US National Academy of Science at Arnold and Mabel Beckman Center, Irvine, USA; August 09-12, 2015. **"Use of binary radio pulsars with compact companions to understand basic physics": a poster presentation**.

2014

32. "Neutron Stars: A brainstorming workshop", at The National Centre for Radio Astronomy –Tata Institute of Fundamental Research, Pune, India; November 20-21, 2014. **"The population of neutron stars: looking through theory, simulation and observation": invited review talk**.

31. "The 32nd Meeting of the Astronomical Society of India (ASI)", at Indian Institute of Science Education & Research – Mohali, Mohali, India; March 20 - 22, 2014. **"Detecting and modeling pulsar - black hole binaries": an oral presentation**.

2013

30. "Gravitational Wave Physics and Astronomy Workshop (GWPAW)", Inter University Centre for Astronomy and Astrophysics, Pune, India; December 17 - 20, 2013. **"Detecting and modeling pulsar - black hole binaries": an oral presentation**.

29. "The Metrewavelength Sky", National Centre for Radio Astrophysics - Tata Institute of Fundamental Research, Pune, India; December 9 - 13, 2013. **"The detectability of eccentric binary pulsars": a poster presentation**.

28. "Interface of numerical relativity with analytical relativity, gravitational-wave astronomy, neutrino physics, and high-energy astrophysics", International Centre for Theoretical Sciences - Tata Institute of Fundamental Research, Bangalore, India; 24 June - 5 July, 2013. **"Radio pulsars and EoS": a brief oral presentation**.

27. Aspen Winter Conference on "Physical Applications of Millisecond Pulsars", at Aspen Center for Physics, Aspen, USA; January 19-24, 2013. **"The detectability of eccentric binary pulsars": an oral presentation**.

2012

26. NANOGrav Fall Science Meeting, at Oberlin College, Oberlin, Ohio, USA; October 24-26, 2012.

25. Aspen Winter Conference on "The Physics of Astronomical Transients", at Aspen Center for Physics, Aspen, USA; January 21-27, 2012. **"Isolated dispersed radio bursts": an oral presentation**.

24. "Exploring Low-Mass Dark Matter Candidates", at Pittsburgh Particle Physics, Astrophysics and Cosmology Center, Pittsburgh, USA; November 14-16, 2011.

23. "International Pulsar Timing Array (IPTA) Student Workshop and Science Meeting", in West Virginia, USA; June 6-17, 2011.

2011

22. "86^{th} Annual Meeting of West Virginia Academy of Science", at West Virginia University Institute of Technology, Montgomery, USA; April 2, 2011. **"Luminosities of recycled pulsars in globular clusters": a poster presentation**.

21. "Fab Five Fest", at Arecibo Observatory, Arecibo, Puerto Rico, March 20-22, 2011. **"Luminosities of recycled pulsars in globular clusters": a poster presentation**.

2010

20. Fermi Regional Workshop, at University of Michigan, Ann Arbor, Michigan, USA, December 9-10, 2010. **"Gamma-ray emission from globular clusters and implications in pulsar research": an oral presentation**.

19. "Radio pulsars: An astrophysical key to unlock the secrets of the Universe", at Chia Laguna Resort, Sardinia, Italy; October 10-15, 2010. **"The luminosity function of millisecond pulsars in globular clusters": an oral presentation**.

2009

18. "The 27th Meeting of the Astronomical Society of India (ASI)", at Indian Institute of Astrophysics (IIA), Bangalore, India; February 18-20, 2009. **"Orbital eccentricity of binary radio pulsars in globular clusters and interaction between stars": a poster presentation**.

2008

17. "The Low-Frequency Radio Universe", at National Centre for Radio Astrophysics (NCRA), Pune, India; December 8-12, 2008. **"Orbital parameters of binary radio pulsars in globular clusters and stellar interactions": a poster presentation**.

16. "School and Workshop on Supernovae & Gamma-Ray Bursts at Low z in the Era of Reionization", in Darjeeling, India (jointly organized by TIFR and IIA); May 23-29, 2008.

15. "Astrophysics of Compact Objects", in Huangshan, China; July 1-7, 2007. **"Strange Stars: an interesting member of the compact object family": a poster presentation**.

2007

14. 10^{th} "Young Astronomers' Meet", at IIA, Bangalore, India; January 3-5, 2007. **"Searching strange stars by observing x-rays, gamma rays and radio waves": an oral presentation**.
13. "Study of Emission from Hot Diffuse Gas with ASTROSAT", at Christ College, Bangalore, India; December 27, 2006 - January 3, 2007. **"A glimpse to strange stars": an oral presentation**.

12. "An Introductory Workshop on Astrophysics", at Department of Physics, College of Science, M. L. Sukhadia University, Udaipur, India; December 20-24, 2006.
11. "In Heaven and on Earth 2006: The Nuclear Equation of State in Astrophysics", at McGill University, Montreal, Canada; July 5 - 7, 2006. **"Temperature dependence of strange stars' maximum mass and consequences to models of gamma ray bursts within the 'Quark-Nova' picture": a poster presentation**.

2006

10. "Supernova and Gamma-Ray Burst Remnants" at Kavli Institute for Theoretical Physics, University of California, Santa Barbara, USA; February 6 - 10, 2006. **"Explanation of GRB and early afterglows as 'Quark-Nova' phenomenon": a poster presentation**.
9. "Current Puzzles in Astrophysics and its Link to the Fundamental Physics", at Presidency College, Kolkata, India; January 7, 2006. **"Some peculiar aspects of strange stars": an oral presentation**.

8. "Workshop on Astrostatistics" jointly organized by IUCAA and University of Calcutta, at Department of Statistics, University of Calcutta, Kolkata, India; December 21-23, 2005.
7. 9^{th} "Young Astronomers' Meet" at IUCAA jointly organized by IUCAA and NCRA-TIFR, at IUCAA, Pune, India; November 29 - December 02, 2005. **"General relativistic contribution of gravity to surface tension of strange stars and its possible signature in x-ray astronomy": an oral presentation**.
6. The seminars for "The Celebration of The Year of Physics and The Inauguration of The St. Xavier's College Observatory", at St. Xavier's College, Kolkata, India; March 14 - 15, 2005.

2005

5. 5^{th} International Conference on "Physics and Astrophysics of Quark Gluon Plasma", jointly organized by Variable Energy Cyclotron Centre and Saha Institute of Nuclear Physics, Kolkata, India; February 8 - 12, 2005. **"Strange star Equation of State with a modified Richardson potential": a poster presentation**.
4. COSPAR Colloquium on "Spectra and Timing of Compact X-Ray Binaries" at TIFR, Mumbai, India; January 17 - 21, 2005. **"Strange star Equation of State with a modified Richardson potential": a poster presentation**.

3. 3 Day Seminar organized by IUCAA Reference Centre of Jadavpur University, Kolkata, India; September 13 - 15, 2004.

2004

2. 2^{nd} Astrosat Workshop on "Blackhole Astrophysics" at Nuclear Research Laboratory, Bhabha Atomic Research Centre (BARC), Mumbai, India; May 10 - 16, 2004.
1. IUCAA-IIT Kgp "Workshop on High-Energy Astrophysics" at IIT, Kharagpur, India; February 23 - 25, 2004. **"Application of an improved and modified Richardson potential to strange stars": an oral presentation**.

APPENDIX III: Conference organised but not attended

3. Member of the scientific organising committee of the 33rd meeting of the Indian Association of General Relativity and Gravitation (IAGRG) at BITS Pilani, Rajasthan , India; 2-4 January 2025.

2. Member of the scientific organising committee of the student workshop of the 2024 Meeting of the International Pulsar Timing Array. 17-21 June 2024. (https://ipta4gw.org/meetings/).

1. Member of the scientific organising committee of the 10th International Conference on Gravitation and Cosmology (ICGC) "New Horizons and Singularities in Gravity" at IIT-Guwahati, Guwahati, India; 6-9 December 2023.

APPENDIX IV: Details of talks given

(A) Public outreach:

2024

19. "Neutron stars as natural laboratories to study basic theories of physics" - A seminar delivered on 9-AUgust-2023 at Lyola College, Chennai, India (organised jointly by the Department of Physics and Loyola Astronomy and Rocketry Club).

18. "Hunting low-frequency gravitational waves through Pulsar Timing Arrays: The role of InPTA" - an online talk on 29-July-2023 to National Institute of Science Education and Research astronomy club (run by the students of NISER).

17. "Hunting low-frequency gravitational waves through Pulsar Timing Arrays: The role of InPTA" - a lecture on 22-July-2023 in the populsar science lecture series of the Tamil Nadu Science Forum.

2023

16. "Hunting low-frequency gravitational waves through Pulsar Timing Arrays: The role of InPTA" - a lecture on 13-July-2023. in the Vigyan Pratibha Teachers Workshop.

15. "Neutron stars: The best (natural) laboratories to do physics experiments" - a lecture on 11-March-2023 to the school students attending the annual science festival "SCI - VIT 2023" at Vellore Institute of Technology - Chennai. Also delivered an inaugural speech as the chief guest.

2022

14. "Neutron stars: The best (natural) laboratories to do physics experiments" - a lecture to the school students attending the event "Stimulating High School Students Towards a Future in Basic Sciences" at IMSc celebrating Azadi ka Amrit Mahotsav and 60 years of IMSc on 27-August-2022.

13. "Neutron stars: the undead stars that help us understand gravity and particle physics" - an online talk in the celebration of World Space Week (2021) organized by the astronomy club Brahmand of Pandit Deendayal Energy University, Gandhinagar, India on 09-October-2021.

2021

12. "Neutrons stars: the undead stars that help studying gravity and particle physics" - an online talk to the students of Satyabhama University, Chennai on 05-August-2021.

11. "Neutron Stars – two body problem" - a lecture on 12-March-2020 at the Hindustan Institute of Technology and Science, Chennai, India; the event was organized by the School of Aeronautical Scences and Nebula Astro Club.

2020

10. "Talking to undead stars" - a lecture in the workshop on "Women in Science" (organized by SPIE Student Chapter) on 27-January-2020 at VIT University, Chennai, India.

9. "Talking to the stars" - a lecture on 4th October at the Department of Aerospace Engineering SRM Institute of Science and Technology, Kattankulathur, Tamil Nadu, India in celebration of World Space Week.

2019

8. "Talking to the stars" - a lecture on 22nd September at Scicon India 2019 at Coimbatore (https://sciconindia.com/). Scicon India 2019 was a science and technology conference (covering astronomy, data science, biology, climate science, and sustainable living) for school students (aged 10 - 15 years).

7. "Talking to the stars" - a lecture at the DST Vigyan Jyoti residential program titled "Empowering girl students: success through motivational guidance in science, technology and culture" held during 16th May to 5th June 2018 at The Institute for Ocean Management, Anna University, Chennai.

2018

6. "Reaching out for the (neutron) stars" - a talk in the workshop on "Women in Science" (organized by SPIE Student Chapter) on 21-April-2017 at VIT University, Chennai, India.

5. "Twinkle, twinkle little stars; Yes, we know what they are!" - a talk as a part of a programme for school students (class VIII- XII) on the occasion of the International Day of Women and Girls in Science, on 11-February-2017 at IMSc, Chennai, India.

2017

(also a member of the organizing committee).

4. “Introduction to the astrophysics of compact objects” - special lecture in the ‘Refresher Course on Quantum Mechanics’, on December 07, 2016 at B.S. Abdur Rahman University, Vandalur, Chennai, India.

2016

3. “Gravity: Distortion and ripples in the space-time” - a talk as a part of ‘One percent’, the public outreach programme on 21-October-2016, IMSc, Chennai, India.
2. “Gravity” - a lecture on gravitation and astrophysics to school students from Puducherry on 17-February-2016, at IMSc, Chennai, India.

2015

1. “Twinkle twinkle little stars; Yes, I know what you are.” - an invited lecture for the high school students on 20-July-2015, at Chennai Mathematical Institute, Chennai, India.

(B) Research seminars/colloquia:

2024

55. “Neutron Star Equation of State and Pulsar Timing” - An online seminar on 09-April-2024 to Gravitational Radiation and Science with Pulsars (GRASP), a consortium of pulsar researchers from India, South Africa, and China.
54. “Studying gravitational physics using rotation-powered radio pulsars” - a seminar on 24-October-2023 at Ewha Womans University, Seoul, South Korea.
53. “Physics of the Stars, alive and dead” - a lecture on 30-November-2023 to college teachers for the UGC-HRDC refresher course in physics organised by Department of Materials Science, University of Madras.
52. “Hunting low-frequency gravitational waves through Pulsar Timing Arrays: The role of InPTA” - an online seminar on 01-August-2023 to researchers of Aryabhatta Research Institute of Observational Sciences: ARIES, Nainital, India.

2023

51. “Hunting low-frequency gravitational waves through Pulsar Timing Arrays: The role of InPTA” - a seminar on 26-July-2023 at Chennai Mathematical Institute, Chennai, India.
50. “Neutron stars: the undead stars that help to study gravity and particle physics” - a lecture on 30-June-2023 to college teachers in an online faculty development program (FDP) on theoretical and experimental physics organised by Vellore Institute of Technology (Chennai) and G.T.N Arts College Dindigul, India.
49. “Studying gravitational physics using rotation-powered radio pulsars” - a seminar on 27-April-2023 at Indian Institute of Astrophysics, Bangalore, India.

48. “Neutron star Equation of State and pulsar timing” - online seminar on 07-December-2020 at the monthly meeting of Emerging Pulsar Timing Array groups (Chinese Pulsar Timing Array, South Africal Pulsar Timing Array, and Indian Pulsar Timing Array).

2020

47. “Neutron stars as tools to probe gravitational physics” - online seminar on 27-November-2020 as a part of IMSc’s Institute seminar days.

46. “Binary radio pulsars as tools to fundamental physics” - seminar on December 5, 2019 at Saha Institute of Nuclear Physics, Kolkata, India.

2019

45. “Understanding and eliminating external dynamical effects from the observed rate of change in the periods of pulsars.” - seminar on February 26, 2019 at the Department of Physics and Astronomy, West Virginia University, Morgantown, USA.

44. “Exotic pairs of stellar undeads: binary radio pulsars with compact companions” - seminar on February 15, 2018 at Indian Statistical Institute, Kolkata, India.

2018

43. “Exotic pairs of stellar undeads: binary radio pulsars with compact companions” - seminar on February 14, 2018 at Presidency University, India.

2017

42. "Binary radio pulsars with compact companions to understand basic physics" - colloquium on July 28, 2017 at National Centre for Radio Astrophysics - TIFR, Pune, India.
41. "Use of radio pulsar data to understand basic physics" - seminar on March 15, 2017 at Indian Institute of Technology Gandhinagar, Gandhinagar, India.

2016

40. "Understanding gravity using binary pulsars" - guest lectures for the General Relativity and Cosmology graduate course on April 13, 15, 2016 at Institute of Mathematical Sciences, Chennai, India.
39. "Ultra-compact objects in binaries: Looking through gravitational waves" - colloquium given on February 22, 2016 at Institute of Mathematical Sciences, Chennai, India.

2015

38. "Use of binary radio pulsars with ultra-compact companions to understand basic physics" - a seminar given on May 14, 2015 at the Department of Mathematics, The University of Southampton, Southampton, UK.
37. "Use of binary radio pulsars with ultra-compact companions to understand basic physics" - a seminar given on May 6, 2015 at the Department of Physics, Oxford University, Oxford, UK.
36. "Use of binary radio pulsars with ultra-compact companions to understand basic physics" - a seminar given on May 5, 2015 at the School of Physics and Astronomy, The University of Birmingham, Birmingham, UK.
35. "Binary radio pulsars with ultra-compact companions" - a seminar given on April 30, 2015 at Jodrell Bank Centre for Astrophysics, The University of Manchester, Manchester, UK.

2014

34. "Atypical neutron star binaries and triples" - a seminar given on October 1, 2014 at The Institute of Mathematical Sciences, Chennai, India.
33. "Binary radio pulsars: Prospects and problems" - a seminar given on July 11, 2014 at Indian Institute of Astrophysics, Bangalore, India.
32. "Binary radio pulsars: Prospects and problems" - a seminar given on April 15, 2014 at Indian Institute of Technology – Gandhinagar, Gandhinagar, India.
31. "Binary radio pulsars: Prospects and problems" - a seminar given on February 18, 2014 at Indian Institute of Science Education & Research – Indore, Indore, India.
30. "Binary radio pulsars: Prospects and problems" - a seminar given on January 29, 2014 at Indian Institute of Technology – Bombay, Mumbai, India.

2013

29. "Binary radio pulsars: Prospects and problems" - a seminar given on November 18, 2013 at Indian Institute of Science Education & Research – Mohali, Mohali, India.
28. "Binary radio pulsars: Prospects and problems" - a seminar given on November 14, 2013 at Indian Institute of Technology – Ropar, Ropar, India.
27. "Why study pulsars: They are awesome" - a colloquium given on October 23, 2013 at Institute of Mathematical Science, Chennai, India.
26. "Binary radio pulsars as probes to basic physics" - a seminar given on September 23, 2013 at Indian Institute of Technology - Kanpur, Kanpur, India.
25. "Binary radio pulsars as probes to basic physics" - a colloquium given on August 27, 2013 at Harish-Chandra Research Institute, Allahabad, India.
24. "Binary radio pulsars: Prospects and problems" - a seminar given on August 20, 2013 at Indian Institute of Science, Bangalore, India.
23. "Binary radio pulsars: Prospects and problems" - a seminar given on July 16, 2013 at Indian Institute of Science Education & Research – Pune, Pune, India.
22. "Importance of binary radio pulsars in gravitational physics" - a seminar given on May 30, 2013 at International Centre for Theoretical Sciences - TIFR, Bangalore, India.
21. "Binary radio pulsars: Prospects and problems" - a seminar given on May 29, 2013 at Raman Research Institute, Bangalore, India.

20. “Binary Radio Pulsars: Prospects andpProblems” - a seminar given on May 15, 2013 at Saha Institute of Nuclear Physics, Kolkata, India.

19. “What do the orbital and stellar properties of millisecond pulsars in globular clusters tell us?” - a seminar given on December 12, 2011 at Indian Institute of Astrophysics, Bangalore, India.

2011

18. “A study of observed luminosities of millisecond pulsars in globular clusters aiming a better understanding of this population” - a seminar given on December 9, 2011 at Raman Research Institute, Bangalore, India.

17. “Millisecond pulsars in Galactic globular clusters” - a seminar given on November 30, 2011 at Inter University Centre for Astronomy and Astrophysics, Pune, India.

16. “A study of observed luminosities of millisecond pulsars in globular clusters aiming a better understanding of this population” - a seminar given on November 3, 2011 at the Center for Interdisciplinary Exploration and Research in Astrophysics, Northwestern University, Chicago, USA.

15. “Effects of stellar interactions on orbital parameters of binary radio pulsars in globular clusters” - a seminar given on November 4, 2009 at HRI, Allahabad, India.

14. “Effects of stellar interactions on orbital parameters of binary radio pulsars in globular clusters” - a seminar given on March 30, 2009 at Argelander-Institut für Astronomie, Bonn, Germany.

13. “Effects of three body stellar interactions on orbital parameters of binary radio pulsars in globular clusters” - a seminar given on March 25, 2009 at Institute of Astronomy, University of Cambridge, Cambridge, UK.

2009

12. “Radio pulsar binaries in globular clusters: their orbital eccentricities and stellar interactions” - a seminar given on March 19, 2009 at Royal Observatory of Edinburgh, Edinburgh, UK.

11. “Binary radio pulsars in globular clusters: effects of dense stellar environment” - a seminar given on March 11 , 2009 at Jodrell Bank Centre for Astrophysics, University of Manchester, Manchester, UK.

10. “Orbital parameters of binary radio pulsars in globular clusters resulting from three body stellar interactions” - a seminar given on March 10, 2009 at Jodrell Bank Observatory, Cheshire, UK.

9. “The effects of stellar interactions on orbital parameters of binary radio pulsars in globular clusters” - a seminar given on March 4, 2009 at the Department of Physics, University of Oxford, Oxford, UK.

8. “Effect of three body stellar interactions on binary radio pulsars in globular clusters” - a seminar given on January 13, 2009 at Inter University Centre for Astronomy and Astrophysics, Pune, India.

7. “Binary-single star interactions in globular clusters: explanation of the observed eccentricity - orbital period distribution of the binary radio pulsars” - a seminar given on July 21, 2008 at Raman Research Institute, Bangalore, India.

2008

6. “Properties of Strange Quark Matter in connection to astrophysics” - a seminar given on January 21, 2008 at The Institute of Mathematical Science, Chennai, India.

5. “Probing dense matter Equations of State by astronomical observations” - a seminar given on January 9, 2008 at Indian Institute of Science, Bangalore, India.

2007

4. “Strange Stars: an interesting member in the compact object family” - a seminar given on January 9, 2007 at Raman Research Institute, Bangalore, India.

3. “Studying strange stars in the light of x-ray and gamma-ray” - a seminar given on October 17, 2006 at Tata Institute of Fundamental Research, Mumbai, India.

2006

2. “Effect of temperature on strange star properties” - a seminar given on September 19, 2006 at Jadavpur University, Kolkata, India.

1. “Strange stars: an update” - a seminar given on February 15, 2006 at San Diego State University, San Diego, USA.

APPENDIX V: Details of Research Training Schools Attended

5. Sixth NAIC/NRAO School on Single Dish Radio Astronomy, Green Bank Radio Observatory, Green Bank, USA; 2011.

4. Second IIA−Penn State Astrostatistics School, Vainu Bappu Observatory, Kavalur, India; 2008.

3. Observing the X and Gamma-ray Sky, Spring school in Cargese, Corsica, France; 2006.

2. XXI SERC Preparatory School in Theoretical High Energy Physics, Harish-Chandra Research Institute, Allahabad, India; 2005.

1. XX SERC Preparatory School in Theoretical High Energy Physics, The Institute of Mathematical Sciences, Chennai, India; 2004.
